U.S. Department of Justice
Drug Enforcement Administration
Office of Forensic Sciences

The U.S. Attorney General has determined that the publication of this periodical is necessary in the transaction of the public business required by the Department of Justice. Information, instruction, and disclaimers are published in the January issues.

– FEBRUARY 2012 –

SELECTED REFERENCES

[The Selected References section is a compilation of recent publications of presumed interest to forensic chemists. Unless otherwise stated, all listed citations are published in English. Abbreviated mailing address information duplicates that which is provided by the abstracting service. Patents and Proceedings are reported only by their *Chemical Abstracts* citation number. For full text copies of any of the articles listed, you may email the DEA Library at dea.library@usdoj.gov.]

1. Awad T, Maher HM, DeRuiter J, Clark CR. **GC-MS and GC-IRD studies on the ring isomers of N-methyl-2-methoxyphenyl-3-butanamines (MPBA) related to 3,4-MDMA.** Journal of Chromatographic Science 2011;49(5):345-352. [Editor's Notes: Presents title study. Contact: Department of Pharmacal Sciences, Harrison School of Pharmacy, Auburn University, Auburn, AL 36832, USA.]

2. Giebink PJ, Smith RW. **Development of microwave-assisted extraction procedure for organic impurity profiling of seized 3,4-methylenedioxymethamphetamine (MDMA).** Journal of Forensic Sciences 2011;56(6):1483-1492. [Editor's Notes: Presents title study. Contact: Forensics Science Program, School of Criminal Justice, Michigan State University, East Lansing, MI 48824, USA.]

3. Lurie IS, Li L, Toske SG. **Hydrophilic interaction chromatography of seized drugs and related compounds with sub 2 µm particle columns.** Journal of Chromatography, A 2011;1218(52):9336-9344. [Editor's Notes: The use of hydrophilic interaction chromatography (HILIC) with sub 2 µm particle columns for the analysis of drugs and related compounds of forensic interest is described. This technique uses a high organic/low aqueous buffered mobile phase with a polar

stationary phase, and is excellent for the separation of many of the charged solutes that are found in forensic drug exhibits. In this study, HILIC is investigated for 11 solutes of forensic interest. In addition, for columns containing either ethylene bridged hybrid particles with or without an amide bonded phase, the effects of acetonitrile concentration, buffer type, buffer concentration, linear velocity, and sample concentration were studied. Based on these studies, HILIC with sub 2 μm particle columns can offer highly efficient, selective, and rapid isocratic separations of drugs and related compounds of forensic interest, with excellent peak shapes and low back pressures. This is in contrast to reverse phase chromatography (RPLC), where gradient elution is usually required, which can result in extensive overlap between acidic, neutral, and basic solutes. In addition, since HILIC exhibits a much greater loading capacity than RPLC, it could be a preferred technique for drug profiling. Furthermore, because high organic content mobile phases are highly amenable to mass spectrometric detection, the use of HILIC with tandem mass spectrometric detection for the analysis of seized drugs is described. Contact: Special Testing and Research Laboratory, U.S. Drug Enforcement Administration, Dulles, VA 20166, USA.]

4. Stewart SP, Bell SEJ, Fletcher NC, Bouazzaoui S, Ho YC, Speers SJ, Peters KL. **Raman spectroscopy for forensic examination of beta-ketophenethylamine "legal highs": Reference and seized samples of cathinone derivatives.** Analytica Chimica Acta 2011;711:1-6. [Editor's Notes: Presents title study. Contact: Innovative Molecular Materials Group, School of Chemistry and Chemical Engineering, Queen's University, Belfast BT9 5AG, United Kingdom.]

5. Willard MAB, McGuffin VL, Smith RW. **Forensic analysis of Salvia divinorum using multivariate statistical procedures. Part II: Association of adulterated samples to S. divinorum.** Analytical and Bioanalytical Chemistry 2012;402(2):843-850. [Editor's Notes: In this study, Salvia divinorum was extracted and spiked onto four different plant materials (S. divinorum, Salvia officinalis, Cannabis sativa, and Nicotiana tabacum) to simulate an adulterated sample that might be encountered in a forensic laboratory. The adulterated samples were extracted and analyzed by GC/MS, and the resulting total ion chromatograms were subjected to a series of pretreatment procedures that were used to minimize non-chemical sources of variance in the data set. The data was then analyzed using principal components analysis (PCA) to investigate association of the adulterated extracts to unadulterated S. divinorum. While association was possible based on visual assessment of the PCA scores plot, additional procedures including Euclidean distance measurement, hierarchical cluster analysis, Student's t tests, Wilcoxon rank-sum tests, and Pearson product moment correlation were also applied to the PCA scores to provide a statistical evaluation of the observed association. The advantages and limitations of each statistical procedure were compared in a forensic context. Contact: Department of Chemistry, Michigan State University, East Lansing, MI 48824, USA.]

Additional References of Possible Interest:

1. Elian AA, Hackett J. **Anion exchange SPE and liquid chromatography-tandem mass spectrometry in GHB analysis.** Journal of Chromatography, B: Analytical Technologies in the Biomedical and Life Sciences 2011;879(31):3752-3758. [Editor's Notes: Presents title study. Contact: Massachussetts State Police Crime Laboratory, Sudbury, MA 01776, USA.]

2. Mandrioli R, Mercolini L, Raggi MA. **Chiral analysis of amphetamines, methadone and metabolites in biological samples by electrodriven methods.** Electrophoresis 2011;32(19):2629-2639. [Editor's Notes: Presents title review. Contact: Laboratory of Pharmaco-Toxicological Analysis, Faculty of Pharmacy, Department of Pharmaceutical Sciences, Alma Mater Studiorum, University of Bologna, Bologna, Italy.]
3. Pascali JP, Bortolotti F, Tagliaro F. **Recent advances in the application of CE to forensic sciences, an update over years 2009-2011.** Electrophoresis 2012;33(1):117-126. [Editor's Notes: Presents title review. Contact: Department of Public Health and Community Medicine, Section of Forensic Medicine, University of Verona, Verona, Italy.]

4. Walpurgis K, Thomas A, Laussmann T, Horta L, Metzger S, Schaenzer W, Thevis M. **Identification of fibroblast growth factor 1 (FGF-1) in a black market product.** Drug Testing and Analysis 2011;3(11-12):791-797. [Editor's Notes: Presents title study. Contact: German Sport University Cologne, Centre for Preventive Doping Research/Institute of Biochemistry, Germany.]

5. Wang B, He J, Shamsi SA. **A high-throughput multivariate optimization for the simultaneous enantioseparation and detection of barbiturates in micellar electrokinetic chromatography-mass spectrometry.** Journal of Chromatographic Science 2010;48(7):572-583. [Editor's Notes: In this study, a micellar electrokinetic chromatography-mass spectrometry (MEKC-MS) method for the simultaneous analysis of three chiral barbiturates (mephobarbital, pentobarbital, and secobarbital) is developed using the polymeric chiral surfactant polysodium N-undecenoxycarbonyl-L-isoleucinate (poly-L-SUCIL). Contact: Department of Chemistry, Center of Biotechnology and Drug Design, Georgia State University, Atlanta, GA 30303, USA.]

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THE JOURNAL/TEXTBOOK COLLECTION EXCHANGE

The Journal/Textbook Collection Exchange is a service intended to facilitate the transfer of unwanted journals and textbooks to forensic libraries or other *Microgram* subscribers.

The DEA Office of Forensic Sciences is looking for donation of the following items:

1. Journal of Forensic Sciences, 1960 through 1965, either bound or individual issues.
2. Journal of Forensic Sciences, 1975, Issue #4.
3. BDAC Bulletin, Issues 2, 3, and 7 (these date from about 1968) – originals or good photocopies.
4. BNDD Bulletin, Issue 1 (April, 1969) – original or a good photocopy.

If you can assist, please contact Dr. Bob Klein at: robert.x.klein@usdoj.gov.

THE DEA FY 2012 STATE AND LOCAL FORENSIC CHEMISTS SEMINAR SCHEDULE

The FY 2012 schedule for the State and Local Forensic Chemists Seminar is as follows:

June 11-15, 2012
September 10-14, 2012

The school is open only to forensic chemists working for law enforcement agencies. It is intended for chemists who have completed their agency's internal training program and have also been working on the bench for at least one year. There is no tuition charge. The course is held at the Hyatt Place Dulles North Hotel in Sterling, Virginia (near the Washington/Dulles International Airport). A copy of the application form is reproduced on the last page of this issue of *Microgram Bulletin*. Completed applications should be mailed to the Special Testing and Research Laboratory at 22624 Dulles Summit Court, Dulles, VA 20166. For additional information, email DEA-Forensic.Chemist.Seminar@usdoj.gov.

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SCIENTIFIC MEETINGS

Title: Mid-Atlantic Association Forensic Scientists Annual Meeting
Sponsoring Organization: Mid-Atlantic Association Forensic Scientists
Inclusive Dates: May 14-18, 2012
Location: Turf Valley Resort (Ellicott City, MD)
Contact Information: See website
Website: www.maafs.org

Title: Society of Forensic Toxicologists 42nd Annual Meeting
Sponsoring Organization: Society of Forensic Toxicologists Inc.
Inclusive Dates: July 1-6, 2012
Location: Boston Marriott Copley Place – Back Bay, (Boston, MA)
Contact Information: See website
Website: www.soft2012.org

DEA State and Local Forensic Chemist Seminar Application

Name: (PRINT NAME EXACTLY AS IT IS TO APPEAR ON CERTIFICATE)	Title:

Employer:

Your Office Mailing Address (include city, state, and zipcode):	Length of Service:

Business Telephone: ( ) -	Business Fax: ( ) -	Date of Application:

Email Address:

Education

College or University	Degree	Major

Please Check Which Techniques or Equipment Are Used in Your Laboratory

	Color Tests		UV
	Column Chromatography		IR
	Microcrystal Tests		CE
	Thin Layer Chromatography		GC/MS
	GC		Other (please specify)
	HPLC		Other (please specify)

Indicate Analytical Problem(s) Nominee Would Like to Have Covered:

Choice of Seminar Dates:
1st Choice: 2nd Choice:

Laboratory Chief/Director:

Printed Name:_____ Signature: _____

Title: _____ Date: _____

Phone: _____